

The Committee (Dr. Patterson, Professor Frazer, and Mr. Downes), to whom had been referred Mr. Sears C. Walker's paper on the planet Neptune, read 19th February, 1847, reported, recommending its publication in the Transactions of the Society, which was ordered accordingly.

Dr. Patterson read a letter from Mr. Walker, dated Washington, 31st March, 1847, containing some observations concerning the identity of the planet lately discovered, with that of Leverrier.

Dr. Ludlow, from the Committee appointed to consider the propriety of amending the laws regulating nominations for membership, made a report, which was laid on the table.

Mr. Ord presented a letter, directed to C. W. Bacon, Esq., from Alexander Ray, of Washington City, asking that an examination might be made of the papers of the late Chas. Pettit, now in the Library of the Society, in order to discover whether there are among them any documents illustrative of certain claims for revolutionary services.

Whereupon leave was granted to Mr. Bacon to examine the said papers, under the direction of the Librarian.

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*Stated Meeting, April 16.*

Present, twenty-seven members.

Dr. CHAPMAN, President, in the Chair.

The following donations were announced:—

FOR THE LIBRARY.

Philosophical Transactions of the Royal Society of London, for the Year 1846. In Four Parts. 4to.—*From the Royal Society of London.*

List of the Royal Society, 30th November, 1846. 4to.—*From the same.*

Proceedings of the Royal Society of London. Nos. 62 to 66, inclusive. November 27th, 1845, to November 30th, 1846. 8vo. *From the same.*

Astronomical Observations made at the Royal Observatory, Greenwich, in the Year 1844, under the Direction of George Biddell Airy, Esq., M. A., Astronomer Royal. Published by order of the Board of Admiralty, in obedience to Her Majesty's Command. London, 1846. 4to.—*From the same.*

Transactions of the Royal Society of Edinburgh. Vol. XVII. Part II. Containing the Makerstoun Magnetical and Meteorological Observations for 1843. Edinburgh, 1847. 4to.—*From the Royal Society of Edinburgh.*

Astronomical Observations made at the Royal Observatory, Edinburgh. By the late Thomas Henderson, F.R.S. &c., Professor of Practical Astronomy in the University of Edinburgh, and Her Majesty's Astronomer for Scotland. Reduced and Edited by his Successor, Charles Piazzzi Smyth. Vol. VI. For the Year 1840. Edinburgh, 1847. 4to.—*From the Royal Observatory, Edinburgh.*

Monthly Notices of the Royal Astronomical Society of London. Vol. VII. December 11, 1846. No. 10. January 8, 1847. No. 11. 8vo.—*From the Astronomical Society.*

The Quarterly Journal of the Geological Society. Edited by the Vice-Secretary of the Geological Society. No. 9. February 1, 1847. 8vo.—*From the Geological Society of London.*

Journal Asiatique, ou Recueil de Mémoires, d'Extraits et de Notices relatifs à l'Histoire, à la Philosophie, aux Langues, etc., des Peuples Orientaux. Quatrième Série. Tome VIII. No. 38. Octobre, 1846. 8vo.—*From the Asiatic Society of Paris.*

Annuaire Magnétique et Météorologique du Corps des Ingénieurs des Mines de Russie, ou Recueil d'Observations Magnétiques et Météorologiques faites dans l'Étendue de l'Empire de Russie, et publiées par ordre de S. M. l'Empéreur Nicolas I., sous les auspices de son Exc. M. de Wrontchenko, Ministre des Finances. Par A. T. Kupffer, Directeur des Observatoires Magnétiques des Mines de Russie. Année, 1843. Nos. 1 et 2. St. Pétersbourg, 1845. 4to.—*From the Director, M. Kupffer.*

Annals of the Lyceum of Natural History of New York. Vol. IV. April, 1847. Nos. 8 and 9. 8vo.—*From the Lyceum of Natural History.*

A Discourse delivered before the Rhode Island Historical Society, on the evening of January 13, 1847. By the Hon. Job Durfee. Providence, R. I. 1847. 8vo.—*From the Society.*

The Annals and Magazine of Natural History, including Zoology,

- Botany, and Geology. Vol. XIX. Nos. 124, 125. February and March, 1847. 8vo.—*From Sir Wm. Jardine, Bart.*
- The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XXVI. New Series. April, 1847. 8vo.—*From the Editor.*
- The African Repository and Colonial Journal. Vol. XXIII. April, 1847. No. 4. 8vo.—*From the American Colonization Society.*
- Journal of the Franklin Institute of the State of Pennsylvania. Vol. XLIII. No. 256. Third Series. Vol. XIII. April, 1847. No. 4. 8vo.—*From Dr. Patterson.*
- The Potatoe Plant, its Uses and Properties; together with the Cause of the present Malady, the Extension of that Disease to other Plants, the Question of Famine arising therefrom, and the best Means of averting that Calamity. By Alfred Smee, F.R.S. London, 1846. 8vo.—*From the Author.*
- Échalas, pisseaux et lattes (Médoc), remplacés par des lignes de fil de fer, Mobiles, établies au Printemps et enlevées à l'Automne, à la Mécanique. Par André-Michaux. Paris, 1845. 8vo.—*From the Author.*
- Report of the Exploring Expedition to the Rocky Mountains, in the Year 1842, and to Oregon and North California, in the Years 1843-1844. By Brevet Captain J. C. Frémont. Printed by order of the Senate of the United States. Washington, 1845. 8vo.—*From the Honourable Thomas H. Benton.*
- Topographical Map of the Road from Missouri to Oregon, commencing at the mouth of the Kansas in the Missouri River, and ending at the mouth of the Wallah Wallah in the Columbia. In VII. Sections. From the Field Notes and Journal of Capt. J. C. Frémont, and from Sketches and Notes made on the ground by his Assistant, Charles Preuss. Compiled by C. Preuss, 1846, by order of the Senate of the United States.—*From the same.*
- Charge to the Graduates of Jefferson Medical College of Philadelphia, delivered March 25, 1847, by Professor Dunglison. Published by the Graduating Class.—*From the Author.*
- Directions in Regard to the Operations of the Coast Survey, for 1847-48. Approved by the Treasury Department, March, 1847. *From Prof. Bache.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

- Astronomische Nachrichten. Nos. 586 to 589, inclusive. Altona, January 9, to February 25, 1847. 4to.

The London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series, Nos. 199, 200. February and March, 1847. 8vo.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences; par MM. les Secrétaires Perpétuels. Tome XXIII. Nos. 19 to 26, inclusive. November 9, to December 28, 1846. 4to.

The Committee (Drs. Hays, Bache and Condie), to whom had been referred the memoir of Dr. Charles D. Meigs, upon the reproduction of *Didelphis Virginiana*, read 19th March, 1847, reported, recommending its publication in the Transactions of the Society, which was ordered accordingly.

Professor Owen's paper on the reproduction of the kangaroo and the wombat, has left certain points still unsettled as to the reproduction of the marsupials; and MM. Milne Edwards and Pouchet, in their works, have left uncleared up several points, which it is the object of Dr. M.'s paper to explain.

The terms *fœtus* and *embryo* cannot properly be applied to the young of the *didelphis* while in the pouch; since, when first placed in the marsupium, the young opossum is endowed with all the attributes of a mammiferous quadruped in the full enjoyment of a real warm-blooded respiratory and digestive existence. None of the authors on this subject appear to have investigated the state of the early young; and the most vague and incorrect notions still prevail as to their condition.

On the 18th February, 1847, a light snow having fallen, the tracks of two opossums were followed on the 19th, over the snow, to the trunk of a hollow tree, wherein they had concealed themselves, and from which were taken a full grown male and female *didelphis*. It was supposed, from the appearance of the testes in the male, and the monotrem of the female, that the animals had retired for the rut, as they are rarely found in company at other seasons.

On the 27th February they were brought to me, and I carefully examined the marsupium, but could discover no trace of any mammary development of the base of the delicate nipples. February 28th, no change was discovered by inspection or careful palpation of the pouch. On Monday, March 1st, and on Tuesday, the 2d, there was not the least sign of change in the pouch. On Wednesday, the 3d, the mammary glands were visibly and palpably enlarged. On Thursday, 4th, still larger. On Friday, 5th, hard and

swollen. Saturday, 6th, passed without my inspection; but my servant examined the pouch, and discovered no young ones at the teats. At 3 P. M. on Sunday, 7th March, I opened the pouch, and discovered the young animals adhering to the nipples.

Here, then, was a manifest preparation for the reception of the marsupial young, began on Wednesday, the 3d March, and completed by Sunday, the 7th, which is four days. Hence it is clear that the notion heretofore entertained, that the embryo makes the teat wherever it happens to take hold, is unfounded, the preparation being as complete as in any other mammal.

The uterine gestation probably terminated on the night of Saturday, March the 6th, or the morning of Sunday, the 7th. The rut probably continued as late as the 18th or 19th February, which is 17 or 18 days; possibly the impregnations may have been a few days earlier than the said dates.

The observation settles, at least, the question as to one of the reproductive seasons, which in this case was February.

In Mr. Owen's observation on the kangaroo, the uterine gestation lasted thirty-nine days; but the kangaroo is a large animal in comparison; the opossum rarely being more than fifteen or sixteen pounds in weight.

Mr. Owen does not mention the preliminary condition of the mammary glands in the kangaroo.

Thirteen young opossums were attached to as many nipples, all strongly adhering, and busily employed in sucking the milk.

They moved the forearms, and paws, and heads, very freely; so that to open the sphincter marsupii was to disclose a very lively scene.

They were of a deep rose-tint, and without hair.

They were of equal size. I pulled one off from the nipple; and the attachment was so strong, that I expected to tear the body in two before I disengaged the mammilla from the stomal pore in which it was engaged. There was no bulb at the end of the nipple after the detachment of the young one.

No blood about the mouth or on the nipple followed the separation.

It was removed at 40 minutes past 7 P. M. It weighed exactly three grains and a half.

From the snout to the end of the tail it was eight-tenths of an inch long.

Laid in a watch glass, it moved freely round and round the glass, and turned over on one side and the other.

Examined by a lens, it respired by two nostrils and by the mouth. It died at ten minutes past nine o'clock, which was one hour and twenty-nine minutes after its separation, though exposed for some time to the cold air of the street.

The tongue was apparently equal to one-third the magnitude of the head—milk white, grooved so as to embrace half the cylindrical circumference of the teat, which was pressed, as to its other half, against the vault of the palate. The mouth was a pore, which I could not distinctly discern without a lens; the cavity of the mouth spacious. The diaphragm strong.

The heart, in its pericardium, large and powerful. The liver very large. The stomach filled with milk vesicles, examined in the microscope; the intestinal convolutions distended with milk and chyle, stained yellow with bile; the bladder of urine filled with fluid.

Two lungs, each consisting of minute transparent vesicles resembling small soap bubbles.

Such is the anatomy of the young opossum of three and a half grains, destined to attain a weight of fifteen or sixteen pounds.

While lying on the watch glass, I put the smooth point of a pencil to its sternal pore. The animal sucked at the pencil, and held on so firmly, that I could lift it partly off the glass by it.

Does this fact show that twenty-four hours earlier it could draw the delicate teat into the orifice?

The young, having the teat once in the mouth, cannot let it go; nor does it abandon it for many days. It adheres as the bitch adheres to the male organ of the dog.

I could discover no trace of an umbilicus. I sought for it with a good doublet. But it is not to be believed that a breathing, sanguiferous, digesting mammifer, can be developed independently of a placenta.

On Monday, March 12th, an animal being removed for dissection weighed twelve grains; it breathed thirty-two times per minute.

March 18th. A young one weighed eighteen grains. The tail very prehensile.

I immersed it in a cup of alcohol to kill it for dissection. It did not die in the fluid until it had been immersed in it for sixteen minutes.

The observations show the marsupial young to have a chylopoietic, warm-blooded, oxydating, innervating, and free-willing life, being as fully endowed with all the means of an independent existence, as the young of the elephant at the teat.

If this be so, all mystery as to the nature of the life of the marsupial young is at an end.

The Committee (Right Rev. Bishop Potter, Dr. Demmè, and Dr. Bethune), to whom had been referred Prof. Tucker's paper upon Cause and Effect, read 5th March, 1847, reported, recommending that the thanks of the Society be presented to Prof. Tucker for his paper, and that he be requested to prepare a copy, to be placed in the archives of the Society: which recommendation was adopted by the Society.

Mr. Ord announced the death of Mr. Charles A. Lesueur, of Havre, on the 12th December, 1846, in the 68th year of his age: whereupon Mr. Ord was requested to prepare an obituary notice of our late member, Mr. Lesueur.

The nominations for membership were then read and discussed, and the candidates balloted for.

On motion of Dr. Patterson, the project for the amendment of the By-laws, proposed by the Committee, was postponed until the next meeting.

The business of the meeting being finished, the ballot boxes were examined, and the following gentlemen declared to have been duly elected members of this Society:—

- M. A. T. KUPFFER, of St. Petersburg.
- M. U. J. LEVERRIER, of Paris.
- Mr. J. Y. MASON, of Virginia.
- Mr. RICHARD A. TILGHMAN, of Philadelphia.
- Prof. Wm. PROCTER, Jr., of Philadelphia.

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*Stated Meeting, May 7.*

Present, twenty-two members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were announced and read:—

From l'Institut Royal des Sciences, Belles-Lettres et Arts des Pays-Bas, dated Amsterdam, 25th January, 1847, announcing